

On December 10, 2018, Mr. Michael Langman, U.S. EPA Region 5, submitted comments to IDEM, OAQ on the draft PSD/New Source Construction and Part 70 Operating Permit.

#### Permit Comments

##### **EPA Permit Comment 1:**

Condition D.1.1 incorporates PM, PM<sub>10</sub>, and PM<sub>2.5</sub> best available control technology (BACT) requirements for the coal handling operations. The BACT determination requires 0% visible emissions from the entrance and exit doors of the unloading enclosure at any time. However, the permit does not appear to include monitoring or recordkeeping requirements to determine compliance with this BACT requirement. 326 IAC 2-7-5(3) and 40 C.F.R. 70.6(a)(3) require the part 70 permit to include monitoring and sufficient recordkeeping to obtain reliable data representative of the source's compliance with the permit. We request that you either add periodic visible emissions monitoring requirements to the permit or explain how the draft permit currently requires the source to demonstrate compliance with the limit.

##### **IDEM Response to EPA Permit Comment 1:**

Condition D.1.4 - Testing Requirements, includes opacity testing for the baghouse (EU-1000) that maintains the negative pressure conditions in the coal unloading enclosure. Such opacity testing includes both the BACT requirement at Condition D.1.1(b) and the NSPA requirements at 40 CFR 60, Subpart Y. IDEM, OAQ considers that the compliance monitoring requirements for the baghouses and enclosures and the inspection requirements for the enclosure demonstrate compliance with the opacity limit. IDEM, OAQ notes that the Idaho permit (PTC P-2008.0066, February 10, 2009) referenced in determining BACT for the enclosures does not include periodic visible emissions monitoring other than testing as incorporated in the draft PSD/New Source Construction and Part 70 Operating Permit. No changes were made as a result of this comment.

##### **EPA Permit Comment 2:**

Condition D.1.8 requires daily recordkeeping of the negative pressure and inward velocity of the unloading enclosure, but not the coal storage enclosure. Condition D.1.6 requires the source to either maintain negative pressure or maintain a minimum inward flow velocity through each opening. We request that you include similar coal stockpile enclosure recordkeeping requirements to determine compliance with condition D.1.6.

##### **IDEM Response to EPA Permit Comment 2:**

IDEM, OAQ agrees that recordkeeping requirements for the coal storage enclosures were unintentionally left out of Condition D.1.8. In addition, because the term "door" may suggest an intermittent barrier to passage, the term in paragraph D.1.8(a) and paragraph D.1.11(b) has been changed to "opening." IDEM added a word unintentionally not included in paragraph D.1.11(c). IDEM has also changed the titles of Conditions D.1.5 and D.1.6 to "... Enclosure Control" consistent with the typical usage in compliance determination conditions. Section D.1 has been revised as follows:

...

#### D.1.5 Coal Unloading Enclosure Monitoring Control

...

#### D.1.6 Coal Storage Enclosure Monitoring Control

...

#### D.1.8 Enclosure Monitoring

- (a) The Permittee shall record the negative pressure or velocity at each unloading enclosure door **opening** at least once per day when the associated emissions unit is in operation. When, for any one reading, a measured value is outside the following specifications, the Permittee shall take a reasonable response.

Parameter	Range
Negative Pressure	Equal to or Greater than 0.013 millimeters or seven-thousandths (0.007) inches of water
Inward Velocity	200 feet per minute (1.016 m/sec)

- (b) The Permittee shall record the negative pressure or velocity at each coal storage enclosure opening at least once per day when the associated emissions unit is in operation. When, for any one reading, a measured value is outside the following specifications, the Permittee shall take a reasonable response.

Parameter	Range
Negative Pressure	Equal to or Greater than 0.013 millimeters or seven-thousandths (0.007) inches of water
Inward Velocity	200 feet per minute (1.016 m/sec)

- (b)(c) ...

#### D.1.11 Record Keeping Requirement

- (a) ...
- (b) To document the compliance status with Condition D.1.8(a), the Permittee shall maintain daily records of negative pressure across each unloading enclosure door **opening** or air velocity. The Permittee shall include in its daily record when a measurement is not taken and the reason for the lack of a measurement (e.g. the process did not operate that day).
- (c) To document the compliance status with Condition D.1.8(b), the Permittee shall maintain daily records of negative pressure across each storage enclosure **opening** or air velocity. The Permittee shall include in its daily record when a measurement is not taken and the reason for the lack of a measurement (e.g. the process did not operate that day).
- (d) ...

#### EPA Permit Comment 3:

Condition D.1.8(a) requires the Permittee to take a reasonable response when a monitored enclosure parameter is outside of the established range. However, condition D.1.8(a) does not establish reasonable response requirements. We understand that section C.16 of the draft permit (Responses to Excursions and Exceedances) is typically referred to whenever a reasonable response is required. If section C.16 applies, we suggest referring to it in this condition. Otherwise, we request that you specify any reasonable response requirements, such as the expected response, when the permittee must reasonably respond, and any appropriate recordkeeping requirements to demonstrate that a reasonable response was taken.

#### IDEM Response to EPA Permit Comment 3:

IDEM, OAQ agrees that a reference to Section C – Response to Excursions and Exceedances is consistent with other compliance monitoring provisions. A new paragraph (d) is added to Condition D.1.8, as follows:

#### D.1.8 Enclosure Monitoring

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- (a) ...
- (d) **If abnormal negative pressure or velocity measurements are observed, the Permittee shall take a reasonable response. Section C – Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.**

#### EPA Permit Comment 4:

Condition D.1.9 generally requires the Permittee to inspect the unloading enclosure and storage enclosure once per month. However, this condition does not specify what constitutes a failed inspection nor does it establish any response requirements to a failed inspection. We note that conditions D.1.5(a) and D.1.6(a) require each enclosure to be free of cracks, gaps, corrosion, or other deterioration. If these the conditions necessitate the inspection requirement, then the inspection requirement should require the source to take timely, appropriate action if the enclosures are cracked, have gaps, are corroded, or are otherwise deteriorated.

#### IDEM Response to EPA Permit Comment 4:

IDEM, OAQ agrees with the recommended clarification of Condition D.1.9 - Enclosure Inspection. The condition has been revised as follows:

#### D.1.9 Enclosure Inspection

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- (a) The Permittee shall inspect the unloading enclosure and structure at least once per month **to verify that it is free of cracks, gaps, corrosion, or other deterioration.**
- (b) The Permittee shall inspect each storage enclosure and structure at least once per month **to verify that it is free of cracks, gaps, corrosion, or other deterioration.**
- (c) **If abnormal conditions are observed, the Permittee shall take a reasonable response. Section C – Response to Excursions and Exceedances contains the Permittee's obligation with regard to the reasonable response steps required by this condition. Failure to take response steps shall be considered a deviation from this permit.**

#### EPA Permit Comment 5:

Condition D.3.1(a)(2), (c)(2), (d)(2), (e)(2), and (f)(3) and D.4.1(l) require the Permittee use good combustion practices. This includes flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature monitoring and maintaining each parameter within the manufacturer's recommended operating guidelines or in a range otherwise indicative of proper operation of the emissions unit.

- a. Combustion air flow and flue gas temperature monitoring and recordkeeping requirements do not appear in the permit. We request that you either include air flow and flue gas temperature monitoring in the permit or explain how air flow and flue gas temperature monitoring already occurs as part of the permit.
- b. We request that you specify how the permittee may establish alternate operating parameters that indicate of proper operation of the emissions unit. As written, the permit appears to allow the Permittee to establish alternate operating guidelines in any way and at any time. Further, the permit does not appear to

require the Permittee to maintain records showing how the alternate parameters were established.

#### **IDEM Response to EPA Permit Comment 5:**

IDEM, OAQ reviewed permits from a number of states to complete the BACT determinations for fuel gas combustion units and SRU tail gas incinerators. Most permits considered (examples from Ohio, Illinois, Wyoming, Montana, and Idaho), included nothing to define "good combustion practices." The most extensive definition was found in multiple Louisiana PSD permits that provided the language applied in the draft PSD/New Source Construction and Part 70 Operating Permit. Permits from Oklahoma and Texas used definitions of "good combustion practices" between the two extremes.

While the number of Louisiana PSD permits considered was rather extensive, IDEM found that many of the Louisiana documents did not establish BACT for Riverview Energy Corporation. The most common reason that a Louisiana permit was found not useful in the present analysis was that the source, while similar in some respects to the proposed Riverview Energy source, was in a different SIC code. In some instances, the Louisiana sources found in the RBLC search had not been constructed and were thus not suitable for establishing BACT in the current analysis because compliance with the BACT limits could not be demonstrated. Nevertheless, IDEM did adopt the Louisiana good combustion practices language as the most detailed found in the BACT research process.

Upon further review, IDEM finds that the operating permits issued in associated with the cited Louisiana PSD permits do not appear to include monitoring and sufficient recordkeeping to obtain reliable data representative of the source's compliance with the permit. This observation is applicable to permit number 2840-V4, Alliance Refinery, RBLC ID No. LA-0283, cited in the Step 4 VOC table for fuel gas combustion units >100 MMBtu/hr and permit number 2520-00027-V8, St Charles Refinery, RBLC ID No. LA-0213, cited in the Step 4 VOC table for fuel gas combustion units <100 MMBtu/hr. IDEM considers therefore that these RBLC entries do not establish BACT for units at Riverview Energy Corporation and the definition of "good combustion practices" in the Louisiana PSD permits is considered not applicable to the proposed source.

Although the Louisiana definition of "good combustion practices" is not supported in permit conditions, the requirement to apply good combustion practices appears in some other references. Other states include good combustion practices in BACT determinations for particulate matter, SO<sub>2</sub>, CO, and greenhouse gases. Examples of explanatory language about good combustion practices include;

- Excess oxygen monitoring and annual burner tuning and heater inspection (Ohio)
- Furnace excess air control (Texas)
- Good combustion practice includes operational and design elements to control the amount and distribution of excess air in the flue gas (Oklahoma)

IDEM, OAQ finds that a requirement to apply good combustion practices is a consistent element of BACT for particulate matter, SO<sub>2</sub>, CO, and greenhouse gases. Based on a review of language applied in other states, good combustion practices are defined as the installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit and compliance with the tune-up requirements of 40 CFR 63.7540(a)(10), (11) or (12) that are applicable to the unit. The determination of NO<sub>x</sub> and VOC BACT for the fuel gas combustion units therefore does not include a requirement to apply good combustion practices.

Condition D.3.1 - Prevention of Significant Deterioration (PSD) BACT of the draft PSD/New Source Construction and Part 70 Operating Permit has been revised as follows:

## D.3.1 Prevention of Significant Deterioration (PSD) BACT [326 IAC 2-2-3]

...

(a) ...

(2) The units shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.

(3) ...

(b) The Best Available Control Technology (PSD BACT) for SO<sub>2</sub> for the fuel combustion units shall be as follows:

(1) The units shall burn only natural gas and process off-gas.

(2) The average sulfur content of the fuel gas combusted shall not exceed 0.005 gr/scf per twelve (12) consecutive month period with compliance determined at the end of each month.

(3) SO<sub>2</sub> emissions shall not exceed:

SO <sub>2</sub> Emission Limitations	
Unit ID	tpy
EU-1007	0.35
EU-2001	0.80
EU-2002	0.33
EU-2003	0.06
EU-2004	0.97
EU-6000	0.42

(4) The units shall use good combustion practices. Good combustion practices shall include installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.

(c) ...

(2) ~~The units shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.~~

(32) The units shall use ultra-low-NOx burners.

(43) NOx emissions shall not exceed:

Emission Limitations		
Unit ID	lb/MMBtu	lb/hr
EU-1007	0.030	1.67
EU-2001	0.030	3.85
EU-2002	0.030	1.58
EU-2003	0.030	0.27
EU-2004	0.030	4.68
EU-6000	0.030	2.06

(d) ...

- (2) ~~The units shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.~~

- (32) VOC emissions shall not exceed:

Emission Limitations		
Unit ID	lb/MMBtu	lb/hr
EU-1007	0.0054	0.30
EU-2001	0.0054	0.69
EU-2002	0.0054	0.29
EU-2003	0.0054	0.05
EU-2004	0.0054	0.84
EU-6000	0.0054	0.37

(e) ...

- (2) ~~The units shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit~~ **installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.**

(3) ...

(f) ...

- (3) ~~The units shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit~~ **installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.**

(4) ...

- (g) **Oxygen trim systems for fuel gas combustion units shall be installed and operated in accordance with the system or burner suppliers' specifications or the most recent valid compliance demonstration.**

The above paragraphs are specific to the application of "good combustion practices" as BACT for fuel gas combustion units. Upon further review, IDEM finds that the Montana permit cited as determining PM/PM<sub>10</sub>/PM<sub>2.5</sub> BACT for the tail gas treatment units (number 2619-24, Conoco Phillips, RBLC ID No. MT-0030) also appears to include no definition of the term "good combustion practices" and no monitoring and record keeping terms that demonstrate compliance with a requirement to apply such practices. As with the Louisiana permits discussed above, IDEM concludes that the lack of definition and absence of monitoring and record keeping provision make this Montana example (RBLC ID No. MT-0030) unsuitable for the purpose of determining BACT for tail gas treatment units at the proposed source. The determination of PM/PM<sub>10</sub>/PM<sub>2.5</sub> BACT for the tail gas treatment units therefore does not include a requirement to apply good combustion practices.

Condition D.4.1 - Prevention of Significant Deterioration (PSD) BACT of the draft PSD/New Source Construction and Part 70 Operating Permit has been revised as follows:

**D.4.1 Prevention of Significant Deterioration (PSD) BACT [326 IAC 2-2-3]**

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...

- (l) ~~Incinerators (A-605A and A-605B) shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.~~
- (m) Carbon dioxide equivalent (CO<sub>2</sub>e) emissions, as defined at 40 CFR 98.6, from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 40,872 tons per twelve (12) consecutive month period, combined, with compliance determined at the end of each month.

**EPA Permit Comment 6:**

Condition D.4.1(d) incorporates an SO<sub>2</sub> concentration BACT limit applicable to the tail gas treatment unit (TGTU) stacks. For clarity, we suggest that you specify that the limit applies to each stack separately. As written, it appears that the limit may apply to both stacks combined.

**IDEM Response to EPA Permit Comment 6:**

IDEM, OAQ considered a concentration limit not subject to a distinction between an "each" or "combined" basis. IDEM agrees with the recommended clarification, since it involves no change to the meaning of the limits. Paragraph D.4.1(d) has been revised as follows:

**D.4.1 Prevention of Significant Deterioration (PSD) BACT [326 IAC 2-2-3]**

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...

- (d) The SO<sub>2</sub> emissions from the **each** tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 150 ppmv @ 0% excess air (on a twelve month rolling average) and shall be less than 167 ppmv @ 0% excess air (on a twelve hour average).
- (e) ...

**EPA Permit Comment 7:**

Condition D.4.1(k) incorporates an opacity requirement as BACT. However, the permit does not require opacity monitoring or testing. Both 326 IAC 2-7-5(3) and 40 C.F.R. § 70.6(a)(3) require the permit to include monitoring and sufficient recordkeeping to obtain reliable data representative of the source's compliance with the permit. We request that you either add periodic opacity monitoring and testing to the permit or provide justification demonstrating that opacity monitoring is not required.

**IDEM Response to EPA Permit Comment 7:**

IDEM agrees with the recommended changes, since opacity testing was unintentionally not included in the testing requirements in Section D.4. Condition D.4.3 - Testing Requirements has been revised as follows:

**D.4.3 Testing Requirements [326 IAC 2-1.1-11]**

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- (a) In order to demonstrate compliance with Condition D.4.1(a), (b), (c), (g), (h), (i), and (j), not later than 180 days after the startup of EU-3001, the Permittee shall perform PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, VOC, CO, **opacity**, and sulfuric acid mist testing of EU-3001 utilizing methods approved by the commissioner at least once every five years from the date of the most recent valid compliance demonstration.
  - (b) In order to demonstrate compliance with Condition D.4.1(a), (b), (c), (g), (h), (i), and (j), not later than 180 days after the startup of EU-3002, the Permittee shall perform PM, PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, VOC, CO, **opacity**, and sulfuric acid mist testing of EU-3002 utilizing methods approved by the commissioner at least once every five years from the date of the most recent valid compliance demonstration.
  - (c) ...

**EPA Permit Comment 8:**

Condition D.4.6(b)(1) requires alternate SO<sub>2</sub> monitoring during SO<sub>2</sub> CEMS downtime. We request that you clarify what this condition means when it says "as required". Based on our discussion with your staff, we understand that this requirement only applies to the emission unit with the failed SO<sub>2</sub> CEMS. The other emission unit with an operational SO<sub>2</sub> CEMS is still required to use the CEMS to determine compliance with the SO<sub>2</sub> limits.

**IDEM Response to EPA Permit Comment 8:**

IDEM agrees with the recommended changes. Condition D.4.6 - SO<sub>2</sub> Continuous Emissions Monitoring (CEMS) Equipment Downtime has been revised as follows:

**D.4.6 SO<sub>2</sub> Continuous Emissions Monitoring (CEMS) Equipment Downtime**

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- (a) ...
  - (b) ...
    - (1) The Permittee shall measure and record Draeger tube sampling of the hydrogen sulfide (H<sub>2</sub>S) concentration in amine absorber T-602A or T-602B (~~as required~~ **whichever serves the SRU with a malfunctioning CEMS**) offgas to incinerator. These parametric monitoring readings shall be recorded at least once per hour until the primary CEMS or backup CEMS is brought online. **If the primary or backup CEMS for the other SRU is operating while the Permittee conducts**

**downtime monitoring for a SRU, the Permittee shall continue operating the functioning CEMS.**

(c) ...

**EPA Permit Comment 9:**

Condition D.9.2 establishes annual operating requirements for both the emergency generator and emergency fire pump. These requirements are being included to ensure the assumptions made in the air quality analysis are enforceable. 40 C.F.R. 51 Appendix W Table 8-2 states that the operating factor must be modeled for all hours of each time period under consideration. Appendix W Table 8-2 footnote 2 further states that the modeled emission rate may be adjusted if it is constrained by a federally enforceable permit condition for all hours of the time period of consideration. We request that you either include a daily limit on the number of hours the generator and the fire pump may operate to allow for an adjusted modeled emission rate in the short-term analysis or provide justification explaining why a short-term limit is not necessary.

**IDEM Response to EPA Permit Comment 9:**

24-hour PM<sub>10</sub> and PM<sub>2.5</sub> modeling was changed due to increased modeled emissions from emergency equipment. Because the 24-hour and annual PM<sub>2.5</sub> modeling was conducted within the same model run, annual PM<sub>2.5</sub> concentrations also increased as a result of the emergency generators running at their full hourly rate. The annual PM<sub>2.5</sub> concentration below is likely an overestimate, however, as these units are limited to a maximum of 100 and 200 hours respectively of operation within a given year. IDEM, OAQ considers that a short-term limit is not necessary because modeling the emergency engines at their maximum hourly rates for all pollutants did not cause or contribute to any NAAQS violations. See Appendix C to the ATSD for the revised air quality analysis in its entirety.

**EPA Permit Comment 10:**

Condition E.1.2 incorporates the requirements of 40 C.F.R. Part 60 Subpart Db. We request that you verify whether the following requirements apply.

- a. Condition E.1.2(7) and (8) refer to 40 C.F.R. Part 63, not 40 C.F.R. Part 60.
- b. Condition E.1.2(18) should also include 40 C.F.R. 60.48b(e)(3). This requirement describes how span values calculated in 40 C.F.R. § 60.48b(e)(2) should be rounded.

**IDEM Response to EPA Permit Comment 10:**

- (a) Typographical errors in Condition E.1.2 have been corrected as follows:

E.1.2 Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units NSPS [326 IAC 12][40 CFR Part 60, Subpart Db]

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...

- (7) 40 CFR ~~63~~ 60.44b(c)
- (8) 40 CFR ~~63~~ 60.44b(e)
- (9) ...

- (b) IDEM agrees with the recommended changes. The permit has been revised as follows:

E.1.2 Standards of Performance for Industrial-Commercial-Institutional Steam  
Generating Units NSPS [326 IAC 12][40 CFR Part 60, Subpart Db]

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...

- (19) 40 CFR 60.48(e)(3)
- (1920) 40 CFR 60.48b(f)
- (2021) 40 CFR 60.49b

**EPA Permit Comment 11:**

Condition E.5.2(5) incorporates 40 C.F.R. § 60.252(b)(2). However, TSD page 41 states more specifically that 40 C.F.R. § 60.252(b)(2)(iii) applies. We request that you verify whether the permit should contain the requirements as described in the TSD.

**IDEM Response to EPA Permit Comment 11:**

Upon review, IDEM, OAQ finds that the discussion of Subpart Y applicability in the TSD was not updated to incorporate the most recent equipment details of the coal drying loop. Pursuant to 40 CFR 60.252(c), thermal dryers receiving all of their thermal input from an affected facility covered under another 40 CFR Part 60 subpart must meet the applicable requirements in that subpart but are not subject to the requirements in Subpart Y. The Coal Dryer Heater is an affected facility, a fuel gas combustion device, under 40 CFR 60, Subpart Ja and supplies all of the heat input to the Coal Dryer. The standards for various pollutants in §60.252(b) are superseded by the general exclusion at §60.252(c).

The Coal Dryer, Coal Dryer Heater, and Drying Loop Condenser are parts of an indirect thermal dryer that is an affected facility under Subpart Y. However, pursuant to 40 CFR 60.252(c), because the thermal dryer receives all of its heat input from an affected facility subject to another subpart of Part 60, the Coal Dryer, Coal Dryer Heater, and Drying Loop Condenser are not subject to the requirements in Subpart Y. The Coal Mill & Pulverizer and Coal Dryer Baghouse are considered coal processing and conveying equipment and are still subject to the requirements of Subpart Y.

Condition E.5.2 - Standards of Performance for Coal Preparation and Processing Plants NSPS is revised as follows:

E.5.2 Standards of Performance for Coal Preparation and Processing Plants NSPS  
[326 IAC 12][40 CFR Part 60, Subpart Y]

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- (4) 40 CFR 60.252(b)(1)
- (5) 40 CFR 60.252(b)(2)
- (6) 40 CFR 60.252(b)(3)
- (74) 40 CFR 60.252(c)
- (85) 40 CFR 60.254(b)
- (96) 40 CFR 60.255(b)
- (107) 40 CFR 60.255(c)
- (118) 40 CFR 60.255(d)
- (129) 40 CFR 60.255(e)
- (1310) 40 CFR 60.255(f)
- (1411) 40 CFR 60.255(g)
- (1512) 40 CFR 60.256(b)
- (1613) 40 CFR 60.256(c)
- (1714) 40 CFR 60.257
- (1815) 40 CFR 60.258

**EPA Permit Comment 12:**

Condition E.11.2(3) cites 40 C.F.R. § 61.304(i), but should instead be 40 C.F.R. § 61.305(i) as stated on TSD page 53.

**IDEM Response to EPA Permit Comment 12:**

IDEM agrees with the recommended correction of a typographical error. Condition E.11.2 has been revised as follows:

E.11.2 National Emission Standard for Benzene Emissions From Benzene Transfer Operations  
NESHAP [40 CFR Part 61, Subpart BB]

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...

(3) 40 CFR 61.304**305**(i)

**EPA Permit Comment 13:**

Condition E.12.2 does not include 40 C.F.R. § 61.342. However, TSD page 55 states that this requirement applies. We request that you verify whether 40 C.F.R. § 61.342 should be included in the permit.

**IDEM Response to EPA Permit Comment 13:**

IDEM agrees with the recommended changes, since the section was unintentionally not copied to the permit. Condition E.12.2 has been revised as follows:

E.12.2 National Emission Standards for Benzene Waste Operations NESHAP [40 CFR Part 61, Subpart FF]

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(3) 40 CFR 61.342  
~~(34)~~ 40 CFR 61.343  
~~(45)~~ 40 CFR 61.346  
~~(56)~~ 40 CFR 61.347  
~~(67)~~ 40 CFR 61.348  
~~(78)~~ 40 CFR 61.349  
~~(89)~~ 40 CFR 61.350  
~~(910)~~ 40 CFR 61.351  
~~(4011)~~ 40 CFR 61.352  
~~(4112)~~ 40 CFR 61.353  
~~(4213)~~ 40 CFR 61.354  
~~(4314)~~ 40 CFR 61.355  
~~(4415)~~ 40 CFR 61.356  
~~(4516)~~ 40 CFR 61.357  
~~(4617)~~ 40 CFR 61.358

**EPA Permit Comment 14:**

Condition E.13.2 incorporates the requirements of 40 C.F.R. Part 63 Subpart CC. We request that you verify whether the following requirements are applicable and update the permit as necessary.

- a. 40 C.F.R. §§ 63.670 and 63.671 are not included in the permit. However, TSD page 63 states that each requirement is an applicable requirement.

- b. Table 6 is not included in the permit. However, 40 C.F.R. § 63.642 is included in the permit and states that the general provisions apply as specified in Table 6.

**IDEM Response to EPA Permit Comment 14:**

IDEM agrees with the recommended changes, since the sections and table were unintentionally not copied to the permit. Changes shown here include the clarification added in the response to EPA Permit Comment 16, below. Condition E.13.2 has been revised as follows:

**E.13.2 National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries NESHAP [40 CFR Part 63, Subpart CC] [326 IAC 20-16]**

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- (19) 40 CFR 63.648**
- ~~(1920)~~ 40 CFR 63.654
- ~~(2021)~~ 40 CFR 63.655
- ~~(2122)~~ 40 CFR 63.656
- ~~(2223)~~ 40 CFR 63.658
- (24) 40 CFR 63.670**
- (25) 40 CFR 63.671**
- (26) Table 6 to Subpart CC of Part 63**
- ~~(2327)~~ Table 11 to Subpart CC of Part 63

**EPA Permit Comment 15:**

Condition E.15.2 incorporates the requirements of 40 C.F.R. Part 63 Subpart UUU. We request that you verify whether the following requirements are applicable and update the permit as necessary.

- a. 40 C.F.R. § 63.1563(d) is not included in the permit, but TSD page 69 says it applies.
- b. 40 C.F.R. § 63.1568(a)(2), (a)(3), (a)(4)(i), (b), and (c) are not included in the permit, but TSD page 69 says each requirement applies.
- c. Tables 29, 30, 31, 33, 34, 35, 40, 41, 42, 43, and 44 are not included in the permit, but TSD pages 69-70 says each table applies.

**IDEM Response to EPA Permit Comment 15:**

IDEM agrees with the recommended changes, since the sections and tables were unintentionally not copied to the permit. Condition E.15.2 has been revised as follows:

**E.15.2 National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units NESHAP [40 CFR Part 63, Subpart UUU] [326 IAC 20-50]**

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...

- (8) 40 CFR 63.1563(d)**
- ~~(89)~~ 40 CFR 63.1563(f)
- ~~(910)~~ 40 CFR 63.1568(a)(1)
- (11) 40 CFR 63.1568(a)(2)**
- (12) 40 CFR 63.1568(a)(3)**
- (13) 40 CFR 63.1568(a)(4)(i)**
- (14) 40 CFR 63.1568(b)**
- (15) 40 CFR 63.1568(c)**

- (1016) 40 CFR 63.1569
- (1117) 40 CFR 63.1570
- (1218) 40 CFR 63.1571
- (1319) 40 CFR 63.1572
- (1420) 40 CFR 63.1573
- (1521) 40 CFR 63.1574
- (1622) 40 CFR 63.1575
- (1723) 40 CFR 63.1576
- (1824) 40 CFR 63.1577
- (1925) 40 CFR 63.1578
- (2026) 40 CFR 63.1579
- (27) **Table 29 to Subpart UUU of Part 63**
- (28) **Table 30 to Subpart UUU of Part 63**
- (29) **Table 31 to Subpart UUU of Part 63**
- (30) **Table 33 to Subpart UUU of Part 63**
- (31) **Table 34 to Subpart UUU of Part 63**
- (32) **Table 35 to Subpart UUU of Part 63**
- (2133) Table 36 to Subpart UUU of Part 63
- (2234) Table 37 to Subpart UUU of Part 63
- (2335) Table 38 to Subpart UUU of Part 63
- (2436) Table 39 to Subpart UUU of Part 63
- (37) **Table 40 to Subpart UUU of Part 63**
- (38) **Table 41 to Subpart UUU of Part 63**
- (39) **Table 42 to Subpart UUU of Part 63**
- (40) **Table 43 to Subpart UUU of Part 63**
- (41) **Table 44 to Subpart UUU of Part 63**

#### **EPA Permit Comment 16:**

40 CFR Part 63, Subpart CC, at 40 CFR § 63.648(a), requires each owner or operator of a new source subject to the provisions of Subpart CC to comply with the National Emission Standards for Hazardous Air Pollutants (NESHAPs) from the Synthetic Organic Chemical Manufacturing Industry for Equipment Leaks, 40 CFR 63, Subpart H, except as provided in 40 CFR 63.648(c) through (j). TSD Page 55 states *"The requirements of ... 40 CFR 63, Subpart H ... are not included in the permit. The source is not subject to provisions of 40 CFR 63, Subpart CC that reference this subpart. Pursuant to 40 CFR 63.640(p)(2), equipment leaks subject to 40 CFR 63, Subpart CC that are also subject to 40 CFR 60, Subpart GGGa are required to comply only with the provisions specified in 40 CFR 60, Subpart GGGa."*

However, the permit indicates the T16 Slop Tank and Biological wastewater treatment bioreactor exhausting to EU-8001 are affected facilities under 40 CFR 63 Subpart CC and are not subject to 40 CFR 60 Subpart GGGa. We note that TSD calculations (Appendix A, pages 27 and 39) indicate these units have the potential to emit HAPs, though it is unclear whether they meet the definition of being "in organic HAP service". We request that IDEM review whether 40 CFR 63, Subpart H applies to these emission units, and revise the permit, if needed.

#### **IDEM Response to EPA Permit Comment 16:**

IDEM, OAQ has reviewed the applicability of 40 CFR 63.348 equipment leak standards to the slop tank and wastewater treatment bioreactor. Pursuant to 40 CFR 63.640(c)(3), the units are part of an affected source for Subpart CC of 40 CFR Part 63. Equipment leaks from the slop tank and wastewater treatment bioreactor are not subject to Subpart GGGa or to provisions of 40 CFR Parts 60 and 61 standards promulgated before September 4, 2007. Pursuant to 40 CFR 63.648(a), therefore, the units shall comply with the provisions of Subpart H of 40 CFR Part 63.

According to 40 CFR 63.160, the provisions of Subpart H apply to pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems, and control devices or closed vent systems required by Subpart H that are intended to operate in organic hazardous air pollutant service 300 hours or more during the calendar year within a source subject to the provisions of a specific subpart in 40 CFR part 63 that references Subpart H.

IDEM, OAQ finds that the slop tank and the wastewater treatment bioreactor do not operate in organic hazardous air pollutant service as defined at 40 CFR 63.161. While the product naphtha may contain greater than 5% by weight of organic hazardous air pollutants, the organic HAP concentration in the wastewater streams present in the units is less than 5% by weight under the operating conditions that may reasonably be expected for the units. The provisions of Subpart H are therefore not applicable to the slop tank and wastewater treatment bioreactor.

For clarity, IDEM, OAQ has added 40 CFR 63.648 to the applicable requirements for Subpart CC. Changes to Condition E.13.2 resulting from this comment are incorporated with the response to EPA Permit Comment 14, above.

#### **EPA Permit Comment 17:**

Permit conditions D.1.7, D.2.5 and D.8.5 require the source to monitor the pressure drop across several fabric filter control devices at least once per day when the associated emissions unit is in operation. This monitoring is conducted to assure continuous compliance under Part 70 for BACT particulate limits. We recommend that IDEM and the source consider using bag leak detection systems (BLDS) for compliance monitoring instead of daily monitoring of pressure drop for each baghouse. For the reasons below, more stringent monitoring might be appropriate to assure continuous compliance under Title V and CAM.

The emission units are subject to PM, PM10 and PM2.5 BACT limits ranging from 0.002 to 0.0022 gr/dscf. The TSD calculations appear to imply a very high control efficiency from the fabric filters must be maintained for certain units to assure compliance with the BACT limits (e.g., refer to the pre- and post-control PM, PM10 and PM2.5 emissions from EU-1008, on TSD Appendix A, pages 10-11). Some emissions units (EU-1008, EU-1504 and EU-2005) are also subject to Compliance Assurance Monitoring under 40 C.F.R. Part 64. BLDS may be appropriate for these emission units to assure the baghouses are operating at a level that achieves continuous compliance.

BLDS is utilized by facilities with similar operations. For example, the BACT analysis indicates that the selected particulate BACT emission limits for several processes were established from facilities that also utilize leak detection systems. Refer to the coal milling/drying (EU-1008) system, the additive preparation system (EU-1504), and various additive conveyors (see TSD, Appendix B, pages 28-30). Furthermore, continuous performance data provided by BLDS may have other ancillary benefits to the source with respect to proactive and predictive maintenance - reducing maintenance costs and avoiding critical baghouse failures.

#### **IDEM Response to EPA Permit Comment 17:**

A concentration limit of 0.002 gr/dscf is applied very widely among coal and mineral handling and processing operations controlled by fabric filters. Determination that this level and type of control represents BACT is considered broadly representative of the class of operations. Baghouse particle collection is primarily a function of the filter cake formed on the exterior of the baghouse filters, and secondarily a function of the baghouse filter media and the mechanical integrity of the baghouse and filter media.

In the Step 4 table for the coal milling and drying operations (page 28 of Appendix B), review of the permit (Essar Steel Minnesota LLC, Minnesota PCA 06100067-004) referenced in the single citation of fabric filter with leak detection shows that the requirement to use leak detection is an element of monitoring, citing 40 CFR 63.9632, rather than a characteristic of the control technology. The NESHAP section cited is in Subpart RRRRR, the National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing, which is not applicable to Riverview Energy Corporation.

The Step 4 table for additive preparation (page 30 of Appendix B) cites the same Minnesota permit (Essar Steel), where leak detection appears as a monitoring practice rather than a characteristic of the control technology. The same is true of other permits cited in the Step 4 additive preparation table (US Steel Corp., Minnesota PCA 13700063-004 and Alliant Energy, Wisconsin DNR 17-DCF-070). The US Steel reclaim conveyor cited to represent BACT in the Step 4 table for conveyor transfer - coal (page 25 of Appendix B) without a statement about leak detection actually is the same permit and unit that appears in the additive preparation table. In all of the material handling BACT determinations the application of bag leak detection systems is a monitoring requirement rather than an essential characteristic of the control technology.

Several of the emissions units referred to in the comment have exhaust flow rates one or two orders of magnitude less than units named in the Essar Steel, US Steel, and Alliant Energy permits as requiring bag leak monitoring. The notable exception among the Riverview Energy units is the drying loop purge baghouse that is a secondary control device treating a stream that has already passed through the coal dryer baghouse. IDEM, OAQ considers that the compliance monitoring provisions included in the draft PSD/New Source Construction and Part 70 Operating Permit are adequate to establish continuous compliance with the applicable limits. No changes were made as a result of this comment.

#### **EPA Permit Comment 18:**

Permit conditions D.12.1(a), E.6.1 and E.6.2 indicate that emission units are subject to the general provisions of NSPS Subpart A and the leak detection and repair program requirements of NSPS Subpart GGGa (refer to 40 CFR § 60.592a). We wish to highlight that the NSPS general provisions give owners/operators the option to identify leaking equipment using an optical gas imaging instrument instead of leak monitoring as prescribed in 40 CFR part 60, appendix A-7 (i.e., using a Method 21 instrument). This alternative work practice (AWP) is described in 40 CFR § 60.18(g) through (i). This AWP is also an option for NESHAP rules that require monitoring of equipment with a Method 21 instrument, as described in 40 CFR § 63.11(c) through (e).

Additional information about the AWP can be found in the Federal Register at [ [HYPERLINK "https://www.gpo.gov/fdsys/pkg/FR-2008-12-22/pdf/E8-30196.pdf"](https://www.gpo.gov/fdsys/pkg/FR-2008-12-22/pdf/E8-30196.pdf) ] (73 FR 78199, December 22, 2008). EPA assessed that the AWP provides equivalent control as the existing Method 21-based LDAR work practice standards and appears to be less burdensome to implement.

#### **IDEM Response to EPA Permit Comment 18:**

IDEM, OAQ appreciates the clarification provided in this comment. The specific applicability of the referenced alternative work practice is incorporated into the permit by conditions that incorporate the general provisions of the NSPS and NESHAPs. No changes were made as a result of this comment.

#### **TSD Appendix B – BACT Comments**

**EPA BACT Comment 1:**

TSD Appendix B page 27 shows that the proposed coal stockpile BACT is the use of a negative pressure enclosure and baghouse. However, the BACT determination on TSD Appendix B page 32 does not identify the use of a negative pressure enclosure as BACT. The emission unit description in section D.1 of the draft permit and the storage enclosure monitoring and inspection requirements in conditions D.1.6 and D.1.9 of the draft permit appear to require the use of a negative pressure enclosure for each coal stockpile. We request that you provide justification for not identifying the use of a negative pressure enclosure as BACT for the coal stockpiles. If a negative pressure enclosure is determined to be BACT, then we request that you consider adding a 0% visible emissions limit from openings in the coal stockpile to further show that the negative pressure enclosure routes all emissions to the baghouse.

**IDEM Response to EPA BACT Comment 1:**

IDEM, OAQ agrees with the recommended changes to descriptive information regarding the coal stockpiles because updated information was unintentionally not copied throughout the BACT analysis. See Appendix B to the ATSD for the revised BACT analysis in its entirety.

For clarity, IDEM, OAQ has added the negative pressure enclosure control description to the railcar unloading facility descriptions throughout the permit, as follows:

...

- (a) Coal handling operations, identified as Block 1000, consisting of:
  - (1) One (1) shelter-type railcar dump unloading facility, identified as EU-1000, approved in 2019 for construction, with a maximum capacity of 5,000 tons of coal per hour and a bottlenecked capacity of 2,263,248 tons per year, with particulate emissions controlled by a **negative pressure enclosure and baghouse** EU-1000, exhausting to stack EU-1000, consisting of:
    - (A) ...

The recommended change and clarification are incorporated into the Particulate (PM, PM<sub>10</sub> and PM<sub>2.5</sub>) BACT Analysis Material Handling BACT determination table in Condition D.1.1 - Prevention of Significant Deterioration, paragraph (a), as follows:

**D.1.1 Prevention of Significant Deterioration (PSD) [326 IAC 2-2-3]**

- (a) Pursuant to 326 IAC 2-2-3, the Best Available Control Technology (PSD BACT) for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> for the coal handling operations shall be as follows:

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	gr/dscf	lb/hr
Railcar unloading, including: Receiving Pits 1 & 2 Receiving Bins 1 & 2 Drag Flight Feeders 1 & 2 (EU-1000)	<b>Negative pressure enclosure and Baghouse EU-1000</b> (stack EU-1000) Water spray dust suppression (bins & feeders only)	PM	0.0022	0.12
		PM <sub>10</sub> <sup>1</sup>	0.0022	0.12
		PM <sub>2.5</sub> <sup>1</sup>	0.0022	0.12

Emission Unit Description (ID)	Control Device (Stack ID)	Emission Limitations		
		Pollutant	gr/dscf	lb/hr
...				
Coal storage enclosure 1, including Conveyor 1 Stacker 1 Boom/Chute Stockpiles #1A & #1B Reclaimer 1	<b>Negative pressure enclosure and Baghouse EU-1006 (stack EU-1006)</b>	PM	0.002	0.11
Coal storage enclosure 2, including: Conveyor 2 Stacker 2 Boom/Chute Stockpiles #2A & #2B Reclaimer 2		PM <sub>10</sub> <sup>1</sup>	0.002	0.11
Reclaim transfer station, including: Conveyor 6 Conveyor 7 Conveyor 9		PM <sub>2.5</sub> <sup>1</sup>	0.002	0.11
...				

IDEM considers the comment regarding visible emissions monitoring of the storage enclosures to be the same as EPA Permit Comment 1. See IDEM Response to EPA Permit Comment 1.

#### **EPA BACT Comment 2:**

TSD Appendix B pages 46-52 is the NO<sub>x</sub> BACT analysis for process fuel gas-fired heaters and boilers. In steps 1 and 2 of the BACT analysis, selective catalytic reduction (SCR) is identified as a technically feasible control option. Step 3 of the analysis ranks control technologies by control effectiveness and appears to rank SCR below ultra-low NO<sub>x</sub> burners (ULNB). From step 3, SCR has an expected control efficiency of 70-90% while ULNB has an expected control efficiency of 40-85%. Based on the expected control efficiencies for each NO<sub>x</sub> control technology, it is not clear whether ULNB has a higher control efficiency. We request that you verify the rankings in step 3 of the analysis. If, for these processes, SCR has a higher control efficiency than ULNB alone, then we request that you continue to evaluate SCR in step 4 of the NO<sub>x</sub> BACT analysis. If SCR is correctly ranked below ULNB, then we request that you provide justification for ranking the control effectiveness of SCR below ULNB.

#### **Response to EPA BACT Comment 2:**

As is noted in the BACT Analysis Process fuel gas-fired heaters and boiler Step 1 analysis for NO<sub>x</sub>, the minimum target flue gas temperature for the application of SCR to process fuel gas-fired heaters is 750°F. Based on process design information provided by the source, flue gas temperatures for units other than EU-2003 range from 400°F to 525°F. The design flue gas temperature for EU-2003 is 800°F. Because the flue gas temperature for all of the units is not optimum for SCR, IDEM assigns a low control efficiency to SCR in this application.

The following changes have been made to the BACT analysis in Appendix B of this ATSD:

- (1) The discussion of good combustion practices as a potential NO<sub>x</sub> control technology was unintentionally not included in the Step 1 analysis for the process fuel gas-fired units. The analysis of good combustion practices has been added to the Step 1 text.
- (2) Paragraph 2 of the BACT Analysis Process fuel gas-fired heaters and boiler Step 1 analysis for NO<sub>x</sub> has been revised to incorporate clarifying language about flue gas temperatures and control efficiency.

See Appendix B to the ATSD for the revised BACT analysis in its entirety.

**EPA BACT Comment 3:**

TSD Appendix B pages 55-59 is the CO BACT analysis for process fuel gas-fired heaters and boilers.

- a. It is not clear whether the CO control technologies identified in step 1 are technically feasible. From the discussion in step 2 of the analysis, it appears that all of the identified control technologies are technically feasible. If each of the controls identified in step 1 are technically feasible, then the analysis should rank the remaining control technologies by control effectiveness in step 3. Economic factors should then be considered in step 4 for each technically-feasible control technology to determine whether the control is effective.
- b. All identified control technologies are eliminated in step 2 since they were all determined to not be cost effective. However, the BACT analysis does not appear to include information about the cost of the controls to support the determination. To ensure the BACT determination is fully supported, we request that you provide justification showing that each control technology is not cost effective.

**IDEM Response to EPA BACT Comment 3:**

IDEM agrees with the recommended changes. The CO Step 2 text for process fuel gas-fired units was revised to indicate clearly that post-combustion controls are considered technically infeasible.

See Appendix B to the ATSD for the revised BACT analysis in its entirety.

**EPA BACT Comment 4:**

TSD Appendix B page 63 states that GHG BACT requires each process fuel gas-fired heater and boiler to be designed and operated to achieve the highest practical energy efficiency. We request that you explain how the source should operate each emissions unit with the highest practical energy efficiency. It is not clear from the determination what steps the source should take to ensure compliance with this part of the BACT determination.

**IDEM Response to EPA BACT Comment 4:**

IDEM agrees with the recommended changes. The Step 2 text for GHGs in the BACT Analysis Process Fuel Gas-Fired Heaters and Boiler section was revised to more clearly define energy efficiency and good combustion practices.

See Appendix B to the ATSD for the revised BACT analysis in its entirety.

**EPA BACT Comment 5:**

TSD Appendix B pages 63 – 69 includes the BACT analysis and determination for the sulfur recovery units (SRUs) and TGTUs. We request that you verify that the BACT analysis for the SRU and TGTU is complete.

- a. Steps 1-3 of the SRU/TGTU BACT analysis appears to begin addressing NOx control technologies. In step 1 of the analysis, low-NOx burners (LNB) are identified as the only available control. However, in step 2 of the analysis, thermal oxidizers are eliminated from the analysis based on cost effectiveness. If thermal oxidizers are technically feasible, then step 3 should rank available control technologies by control effectiveness and evaluate cost and other factors in step 4 of the analysis. We request that you determine whether thermal oxidizers are technically feasible. If thermal oxidizers are technically feasible, then we request further justification showing that the control option is not cost effective.
- b. For PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, VOC, CO, GHGs, and H<sub>2</sub>SO<sub>4</sub>, the BACT analysis does not appear to discuss or identify available control technologies. We request that you determine whether any control technologies are available to control each pollutant triggering PSD requirements. If any identified control technologies are infeasible due to cost, then we request that you provide specific justification demonstrating that the controls are economically infeasible.

**IDEM Response to EPA BACT Comment 5:**

IDEM agrees with the recommended changes because text does not appear to have clearly expressed explanatory material that IDEM had included in other sections. The BACT Analysis Sulfur Recovery/Tail Gas Treatment Unit (TGTU) section was revised to more closely follow the format of other sections and to incorporate explanatory material.

See Appendix B to the ATSD for the revised BACT analysis in its entirety.

In addition, IDEM, OAQ finds that the arrangement of terms in Condition D.4.1 - Prevention of Significant Deterioration (PSD) BACT may not have made clear the conditions and work practices determined to be BACT for each pollutant. Condition D.4.1 has been reformatted to follow the format of similar conditions, as follows:

**D.4.1 Prevention of Significant Deterioration (PSD) BACT [326 IAC 2-2-3]**

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Pursuant to 326 IAC 2-2-3 (Control Technology Review; Requirements), the Permittee shall comply with the following requirements for the sulfur recovery units:

- (a) ~~PM (filterable) emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0019 lb/MMBtu and 0.10 lb/hr, each.~~
- (b) ~~PM<sub>10</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0074 lb/MMBtu and 0.39 lb/hr, each.~~
- (c) ~~PM<sub>2.5</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0074 lb/MMBtu and 0.39 lb/hr, each.~~
- (d) ~~The SO<sub>2</sub> emissions from the tail gas treatment unit stack (TGTUA and TGTUB) shall not exceed 150 ppmv @ 0% excess air (on a twelve month rolling average) and shall be less than 167 ppmv @ 0% excess air (on a twelve hour average).~~

- ~~(e) The SO<sub>2</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 26.30 lb/hr, each.~~
- ~~(f) The tail gas treatment units (TGTUA and TGTUB) shall each use low-NO<sub>x</sub> burners.~~
- ~~(g) NO<sub>x</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.10 lb/MMBtu and 5.28 lb/hr, each.~~
- ~~(h) VOC emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0054 lb/MMBtu and 0.28 lb/hr, each.~~
- ~~(i) CO emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 65 ppmv @ 0% O<sub>2</sub>, shall not exceed 0.082 lb/MMBtu and 4.33 lb/hr, each.~~
- ~~(j) Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub> mist) emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0244 lb/MMBtu and 1.29 lb/hr, each.~~
- ~~(k) Opacity shall not exceed ten percent (10%) on a six-minute average.~~
- ~~(l) Incinerators (A-605A and A-605B) shall use good combustion practices. Good combustion practices shall include monitoring of the flue gas oxygen content, combustion air flow, fuel consumption, and flue gas temperature. These parameters shall be maintained within the manufacturer's recommended operating guidelines or within a range that is otherwise indicative of proper operation of the emissions unit.~~
- ~~(m) Carbon dioxide equivalent (CO<sub>2</sub>e) emissions, as defined at 40 CFR 98.6, from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 40,872 tons per twelve (12) consecutive month period, combined, with compliance determined at the end of each month.~~
- (a) The Best Available Control Technology (PSD BACT) for PM, PM<sub>10</sub>, and PM<sub>2.5</sub> for the sulfur recovery units shall be as follows:**
  - (1) PM (filterable) emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0019 lb/MMBtu and 0.10 lb/hr, each.**
  - (2) PM<sub>10</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0074 lb/MMBtu and 0.39 lb/hr, each.**
  - (3) PM<sub>2.5</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0074 lb/MMBtu and 0.39 lb/hr, each.**
  - (4) Opacity shall not exceed ten percent (10%) on a six-minute average.**
  - (5) Incinerators (A-605A and A-605B) shall use good combustion practices. Good combustion practices shall include installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.**
- (b) The Best Available Control Technology (PSD BACT) for SO<sub>2</sub> for the sulfur recovery units shall be as follows:**
  - (1) The SO<sub>2</sub> emissions from each tail gas treatment unit stack (TGTUA and TGTUB) shall not exceed 150 ppmv @ 0% excess air (on a twelve month rolling average) and shall be less than 167 ppmv @ 0% excess air (on a twelve hour average).**

- (2) The SO<sub>2</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 26.30 lb/hr, each.
- (c) The Best Available Control Technology (PSD BACT) for NO<sub>x</sub> for the sulfur recovery units shall be as follows:
  - (1) The tail gas treatment units (TGTUA and TGTUB) shall each use low-NO<sub>x</sub> burners.
  - (2) NO<sub>x</sub> emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.10 lb/MMBtu and 5.28 lb/hr, each.
- (d) The Best Available Control Technology (PSD BACT) for VOC for the sulfur recovery units shall be as follows:
  - (1) VOC emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0054 lb/MMBtu and 0.28 lb/hr, each.
- (e) The Best Available Control Technology (PSD BACT) for CO for the sulfur recovery units shall be as follows:
  - (1) CO emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 65 ppmv @ 0% O<sub>2</sub>, shall not exceed 0.082 lb/MMBtu and 4.33 lb/hr, each.
  - (2) Incinerators (A-605A and A-605B) shall use good combustion practices. Good combustion practices shall include installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.
- (f) The Best Available Control Technology (PSD BACT) for carbon dioxide equivalent (CO<sub>2</sub>e), as defined at 40 CFR 98.6, for the sulfur recovery units shall be as follows:
  - (1) Carbon dioxide equivalent (CO<sub>2</sub>e) emissions, as defined at 40 CFR 98.6, from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 40,872 tons per twelve (12) consecutive month period, combined, with compliance determined at the end of each month.
  - (2) Incinerators (A-605A and A-605B) shall use good combustion practices. Good combustion practices shall include installation and operation of an oxygen trim system, as defined at 40 CFR 63.7575, on each fuel gas combustion unit.
- (g) The Best Available Control Technology (PSD BACT) for sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) mist for the sulfur recovery units shall be as follows:
  - (1) Sulfuric Acid Mist (H<sub>2</sub>SO<sub>4</sub> mist) emissions from the tail gas treatment unit stacks (TGTUA and TGTUB) shall not exceed 0.0244 lb/MMBtu and 1.29 lb/hr, each.

IDEM, OAQ updated references to BACT limits in other Section D.4 conditions, as follows:

**D.4.5 Greenhouse Gases (GHGs)**

To determine the compliance status with Condition D.4.1 ~~(f)(1)~~, the following equation shall be used to determine the CO<sub>2</sub>e emissions from EU-3001 and EU-3002:

...

**D.4.9 Reporting Requirements**

A quarterly report of CO<sub>2</sub>e emissions and a quarterly summary of the information to document the compliance status with Condition D.4.1 ~~(f)(1)~~ shall be submitted not later than thirty (30) days after the end of the quarter being reported. Section C - General Reporting Requirements contains the Permittee's obligation with regard to the reporting required by this condition. The report submitted by the Permittee does require a certification that meets the requirements of 326 IAC 2-7-6(1) by a "responsible official," as defined by 326 IAC 2-7-1(35).

Correction of related paragraph citations in Condition D.4.7 - Record Keeping Requirements is discussed in IDEM Response to Mr. ~~(b)(6)~~ Comment 8.

**EPA BACT Comment 6:**

TSD Appendix B page 69-84 is the flare BACT analysis. The BACT determination establishes requirements on each flare during sweep and pilot mode operations. For NO<sub>x</sub>, VOC, and CO, the BACT determination also includes certain limits while flaring a process stream. We request that you clarify whether any of the flares are expected to operate during periods of startup and shutdown of the associated emissions units. If so, we request that you either determine whether startup and shutdown BACT requirements are required or provide justification explaining why the current BACT determination would cover startup and shutdown flaring.

**IDEM Response to EPA BACT Comment 6:**

Based on the flare operating scenarios modeled, IDEM, OAQ considers the description used in the permit, "... when flaring a process stream ..." as including startup and shutdown of the associated emissions units. No changes were made in the BACT analysis as a result of this comment.

**EPA BACT Comment 7:**

TSD Appendix B page 95 summarizes the BACT determination applicable to each tank. As part of the BACT determination, a specific storage temperature is identified for each tank. We request that you clarify whether the storage temperature for each tank is a BACT limit. If the storage temperature is not part of the BACT determination, then we suggest removing the storage temperature from the BACT requirements. Otherwise, we request that you include temperature monitoring for compliance.

**IDEM Response to EPA BACT Comment 7:**

The determination of BACT for the storage tanks intends to maintain emissions from those tanks at or below levels that were modeled. Because estimating tank emissions is strongly dependent on the vapor pressure of materials contained in those tanks, including the value of the vapor pressure used in the emissions estimate is considered necessary for identifying the material to demonstrate that tank emissions are at or below levels that were modeled. Vapor pressure is so dependent on temperature that expressing the vapor pressure without the temperature is all but meaningless. Monitoring the temperature of materials stored in the tanks is not considered necessary or informative because the modeled potential to emit is conservatively based on historical meteorological data. Storage temperature and vapor pressure values are retained for tanks without throughput limits as an element of descriptive information.

IDEM, OAQ agrees that tanks with throughput limits rather than characteristic vapor pressure do not require storage temperatures in the Step 4 proposed BACT table and Step 5 (d) table were revised,

See Appendix B to the ATSD for the revised BACT analysis in its entirety.

In addition, paragraph (g) of Condition D.6.1 - Prevention of Significant Deterioration (PSD) Best Available Control Technology (BACT), was revised as follows:

**D.6.1 Prevention of Significant Deterioration (PSD) Best Available Control Technology (BACT)[326 IAC 2-2-3]**

Pursuant to 326 IAC 2-2-3 (Control Technology Review; Requirements), the Permittee shall comply with the following:

- (a) ...
- (g) Tanks shall comply with the following limitations:

Tank ID	Product Stored	Storage Temperature (°F)	Vapor Pressure <sup>1</sup> (psia)	Throughput Limit <sup>2</sup> (kgal/yr)
...				
T16	Slop tank <sup>4</sup>	ambient-	-	305,467
T17	Diesel Fuel	ambient	1.14E-02	-
T18	Non-Phenolic Sour Water <sup>5</sup>	ambient-	-	462,829
T19	Non-Phenolic Sour Water	ambient-	-	462,829
T20	Non-Phenolic Sour Water	ambient-	-	462,829
T21	Phenolic Sour Water	ambient-	-	4,628
...				

**EPA BACT Comment 8:**

TSD Appendix B page 116 summarizes the BACT determination for the emergency diesel generator and emergency diesel firewater pump. The BACT determination (and condition D.9.1(e), accordingly) requires the use of energy efficiency. However, it is not clear from the BACT determination of the permit what is meant by using energy efficiency. We request that you clarify this portion of the BACT determination to further describe what must be done to ensure the emergency generator and emergency fire pump are energy efficient.

**IDEM Response to EPA BACT Comment 8:**

IDEM agrees with the recommended changes. Clarifying language was added to paragraph (c) of the Step 5 BACT analysis for emergency engines.

See Appendix B to the ATSD for the revised BACT analysis in its entirety.

In addition, paragraph (e) of Condition D.9.1 - Prevention of Significant Deterioration (PSD) Best Available Control Technology (BACT), was revised as follows:

**D.9.1 Prevention of Significant Deterioration (PSD) Best Available Control Technology (BACT)[326 IAC 2-2-3]**

Pursuant to 326 IAC 2-2-3 (Control Technology Review; Requirements), the Permittee shall comply with the following:

- (a) ...

- (e) Emergency generator (EU-6006) and emergency fire pump (EU-6008) shall use good combustion practices and shall use energy efficiency. **Use of good combustion practices and energy efficiency is defined as operation of engines certified to meet applicable emissions standards in accordance with the manufacturers' recommendations for operation and maintenance or according to a maintenance plan that complies with 40 CFR 60.4211(g). Good combustion practices may include but are not limited to the following:**
- (1) Prepare and maintain a preventive maintenance plan.
  - (2) Change oil and filter every 500 hours of operation or annually, whichever comes first.
  - (3) Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.
  - (4) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.
  - (5) During periods of startup the Permittee must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.

#### Modeling Comments

##### **EPA Modeling Comment 1:**

The air quality analysis appears to consider the impacts associated with normal operations and several flaring scenarios. Page 4 of the air quality analysis report explains that the facility operates at a diminished operating capacity during each flare event, but it is not clear how the modeled emission rates for emission units operating at a diminished capacity were determined. Particularly, EU1007, EU2001-EU2004, EU3001 and EU3002 (TGTUA and TGTUB), EU6000, and EU7001 and EU7002 are modeled at a reduced emission rate during flaring operations. HP flare EU4006 is modeled at a higher emission rate while flaring, but the flaring emission rate may differ depending on the flaring scenario, such as the two considered in the SO<sub>2</sub> analysis. We request that you show how the modeled emission rates were determined for the flaring scenarios.

##### **IDEM Response to EPA Modeling Comment 1:**

KBR provided IDEM's modeling staff with approximations for the various flaring scenarios and IDEM requested that the consultant submit a revised modeling report which outlines the flaring scenarios and the appropriate rates to be used. IDEM reviewed each of the scenarios and the worst case scenarios were modeled as a percentage of the full rate. Please see the updated modeling report (dated October – 2018) from the Consultant (KBR) for their detailed flaring scenarios.

##### **EPA Modeling Comment 2:**

TSD pages 23-24 includes a stack summary listing the stack parameters for the proposed emissions units. However, in some cases, the modeled stack parameters differ from the stack summary. We request that you verify the following modeled stack

parameters for each listed stack ID and either correct the modeled stack parameters or explain why the modeled stack parameters are correct.

- a. Ambient stack temperatures modeled with fixed stack temperatures: EU1000, EU1001, EU1006, EU1501 – EU1504, EU2005 – EU2008, EU5009 – EU5011, EU6501.
- b. Fixed stack temperatures modeled with temperatures a fixed amount above ambient temperature: EU6001 – EU6003.
- c. Stack flow rates differ from modeled flow rates: EU1502, EU2003.

#### IDEM Response to EPA Modeling Comment 2:

IDEM's modeling files used values derived from the consultant and reviewed by IDEM. The table presented on pages 23-24 of the TSD has been updated to include the stack parameters that were modeled. The difference in the flow rates between the modeling files and the table in the TSD for EU-1502 was due to the use of actual cubic feet per minute (ACFM) vs dry standard cubic feet per minute (DCFM) flow rates in the calculation. Modeled flow rates were based on the dry standard cubic feet per minute calculation. The difference between these values, based on DCFM and ACFM calculations, was 2.95 feet per second. Revised modeling shows no appreciable change in the results and all health-based standard continue to be protected.

The stack summary table is revised to show the modeling inputs, as follows:

Stack Summary					
Stack ID	Operation	Height (ftm)	Diameter (ftm)	Flow Rate Exit Velocity (acfm/s)	Temperature (°FK)
EU-1000	EU-1000	50 <b>15.24</b>	1.67 <b>0.508</b>	7,172 <b>16.7</b>	ambient <b>293.2</b>
EU-1001	EU-1001	175 <b>53.34</b>	2.00 0.61	10,094 <b>16.3</b>	ambient <b>293.2</b>
EU-1006	EU-1006	50 <b>15.24</b>	1.83 <b>0.558</b>	6,166 <b>11.9</b>	ambient <b>293.2</b>
EU-1007	EU-1007	150 <b>45.72</b>	3.00 <b>0.914</b>	21,271 <b>15.3</b>	525 <b>547</b>
EU-1008	EU-1008	50 <b>15.24</b>	3.28 <b>1.00</b>	15,310 <b>9.2</b>	136 <b>331</b>
EU-1501	EU-1501	121 <b>37.00</b>	.83 <b>0.254</b>	945 <b>8.8</b>	ambient <b>293.2</b>
EU-1502	EU-1502	121 <b>37.00</b>	.83 <b>0.254</b>	945 <b>9.7</b>	ambient <b>293.2</b>
EU-1503	EU-1503	79 <b>24.00</b>	.67 <b>0.203</b>	768 <b>11.2</b>	ambient <b>293.2</b>
EU-1504	EU-1504	49 <b>15.00</b>	0.33 <b>0.102</b>	260 <b>15.0</b>	ambient <b>293.2</b>
EU-2001	EU-2001	200 <b>60.96</b>	5.25 <b>1.60</b>	48,865 <b>11.47</b>	525 <b>547</b>
EU-2002	EU-2002	200 <b>60.96</b>	3.15 <b>0.96</b>	17,484 <b>11.4</b>	405 <b>480.4</b>

Stack ID	Operation	Height (ftm)	Diameter (ftm)	Flow Rate Exit Velocity (acfm/s)	Temperature (°FK)
EU-2003	EU-2003	200 60.96	1.57 0.48	4,671 11.4	800 699.8
EU-2004	EU-2004	200 60.96	5.48 1.67	52,678 11.35	420 488.7
EU-2005	EU-2005	121 37.00	0.33 0.102	201 11.6	ambient 293.2
EU-2006	EU-2006	121 37.00	0.33 0.102	242 14.0	ambient 293.2
EU-2007	EU-2007	121 37.00	0.33 0.102	260 15.0	ambient 293.2
EU-2008	EU-2008	121 37.00	0.17 0.051	48 11.0	ambient 293.2
EU-3001	EU-3001	200 60.96	3.67 1.118	25,169 12.1	529 549.3
EU-3002	EU-3002	200 60.96	3.67 1.118	25,169 12.1	529 549.3
EU-4001	EU-4001	150 45.72	0.33 0.10	333 20.0	1831 1273
EU-4004	EU-4004	150 45.72	0.33 0.10	333 20.0	1831 1273
EU-4005	EU-4005	150 45.72	1.31 0.40	5,325 20.0	1831 1273
EU-4006	EU-4006	150 45.72	1.31 0.40	5,325 20.0	1831 1273
EU-5001 <sup>1</sup>	EU- 5001A/B/C/D	50 15.24	2.00 0.61	8,000 6.6	500 533
EU-5002	EU- 5002A/B/C/D	50 15.24	2.00 0.61	8,000 6.6	500 533
EU-5003	EU- 5003A/B/C/D	50 15.24	2.00 0.61	8,000 6.6	500 533
EU-5004	EU- 5004A/B/C/D	50 15.24	2.00 0.61	8,000 6.6	500 533
EU-5009	EU-5009	49 15.00	0.25 0.0762	101 10.5	ambient 293.2
EU-5010	EU-5010	131 40.00	0.33 0.10	161 9.3	ambient 293.2
EU-5011	EU-5011	131 40.00	0.33 0.10	161 9.3	ambient 293.2
EU-6000	EU-6000	100 30.48	3.51 1.07	22,159 11.63	400 477.6
EU-6001	EU-6001	76 23.16	21.00 6.4	583,486 8.56	91 -6 <sup>2</sup>
EU-6002	EU-6002	76 23.16	21.00 6.4	583,486 8.56	91 -6
EU-6003	EU-6003	76 23.16	21.00 6.4	583,486 8.56	91 -6

Stack ID	Operation	Height (ftm)	Diameter (ftm)	Flow Rate Exit Velocity (acfm/s)	Temperature (°FK)
EU-6006	EU-6006	15 <b>4.72</b>	1.33 <b>0.406</b>	15,197 <b>55.4</b>	770 <b>683.2</b>
EU-6008	EU-6008	15 <b>4.72</b>	1.33 <b>0.406</b>	15,197 <b>55.4</b>	770 <b>683.2</b>
EU-6501	EU-6501	121 <b>37.00</b>	0.67 <b>0.203</b>	555 <b>8.1</b>	ambient <b>293.2</b>
EU-7001	EU-7001	164 <b>50.00</b>	11.32 <b>3.45</b>	229,374 <b>11.58</b>	319 <b>432.6</b>
EU-7002	EU-7002	164 <b>50.00</b>	11.32 <b>3.45</b>	229,374 <b>11.58</b>	319 <b>432.6</b>
EU-7003	EU-7003	80 <b>24.39</b>	1.67 <b>0.51</b>	1,887 <b>4.36</b>	224 <b>379.82</b>
EU-7004	EU-7004	80 <b>24.39</b>	1.67 <b>0.51</b>	1,887 <b>4.36</b>	224 <b>379.82</b>
EU-8001 <sup>3</sup>	EU-8001	75 <b>22.9</b>	1.00 <b>0.305</b>	1611 <b>4.6</b>	100 <b>311</b>
EU-8002	EU-8002	6.25 <b>1.91</b>	0.17 <b>0.052</b>	11.2 <b>2.2</b>	100 <b>311</b>
EU-8003	EU-8003	6.25 <b>1.91</b>	0.17 <b>0.052</b>	4.5 <b>0.9</b>	100 <b>311</b>

Notes:

1. EU-5001 - 5004 were not modeled, values included for comparison.
2. Dispersion modeling software uses negative values to instruct the software to apply a positive 6 K correction to the ambient temperature.
3. EU-8001 - 8003 were not modeled, values included for comparison.

### EPA Modeling Comment 3:

Air quality analysis table 1 summarizes the emission rate of the proposed source. However, the NO<sub>x</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, and VOC emission rates included in the table differ from the values given in both TSD page 25-26 and TSD Appendix A pages 1-3. We request that you verify the table 1 emission rates and correct the table as necessary.

### IDEM Response to EPA Modeling Comment 3:

Table 1 in the Air Quality Analysis, Appendix C of this ATSD, has been updated to reflect and match pages 25-26 of the TSD and TSD Appendix A pages 1-3.

See Appendix C to the ATSD for the revised air quality analysis in its entirety.

### EPA Modeling Comment 4:

Air quality analysis table 3 presents the results of the preconstruction monitoring analysis. Annual NO<sub>2</sub>, 24-hour PM<sub>10</sub>, and 24-hour SO<sub>2</sub> maximum modeled impacts in table 3 differ from the significant impact level (SIL) analysis results provided in table 2. We request that you verify the table 3 maximum modeled impacts and correct the table as necessary.

**IDEM Response to EPA Modeling Comment 4:**

The values in the Preconstruction Monitoring Analysis table (Table 3) of the Air Quality Analysis, Appendix C of this ATSD, has been checked and corrected. These appeared to be transposition errors from the values in the Significant Impact Levels table (Table 2). The values between Table 2 and Table 3 now match.

See Appendix C to the ATSD for the revised modeling analysis in its entirety.

**EPA Modeling Comment 5:**

Page 6 of the air quality analysis report explains that CEMS data was used to determine the operating level and modeled emission rate for Indiana-Michigan Power - Rockport, ALCOA Power Plant, and IPL Petersburg consistent with 40 C.F.R. Part 51 Appendix W Table 8-2. It is not clear whether the information used to determine the modeled emission rate for each source with CEMS data is available within the permit record. It is also not readily clear from the report how the modeled emission rates for sources without CEMS data were determined. We request that you include as part of the permit record the nearby source CEMS data, actual operating level calculations, and a brief explanation of how the modeled emission rates for sources without CEMS data were determined.

**IDEM Response to EPA Modeling Comment 5:**

IDEM has made continuous emissions monitoring (CEMS) data available for the inventory sources whose modeled emissions were based on actual operating level conditions. Actual operating level calculations were taken as a simple average of the operating level over the most recent two year of CEMS data. These values were then multiplied by the permitted rate for each pollutant to get the lb/hr rate. Sources without CEMS data were modeled using permitted conditions and estimates from previous modeling.

IDEM requested that the source please find any major emission sources in Kentucky to be included in the modeling. These sources are relatively small and are nearly 50 km away from the facility. The consultant was able to find the most recent actual emissions from these Kentucky sources and those were used in the modeling.

One commenter mentioned an email from KBR suggested the use of U.S. Energy Information Administration (EIA) data to determine the actual operating level in order to determine the emission rates for the inventory sources. The commenter also suggested that this method uses actual emissions. Use of actual operating levels over the most recent two year period is supported in the Appendix W Guideline, Table 8-2. The actual operating levels are not synonymous with actual emissions. Actual operating levels, rather, are used in conjunction with the permitted limit for the inventory sources to derive the modeled emission rates for the inventory sources. Please see the updated Table 8-2 of Appendix W for more information.

IDEM agreed with the consultant in using operating levels to determine emission rates but consulted with U.S. EPA in using EIA data to derive these values. After discussing with U.S. EPA, IDEM recommended to the consultant the use of the operating levels found within the CEMs data for the inventory sources in lieu of the EIA data.

**EPA Modeling Comment 6:**

Pages 10-13 of the air quality analysis includes the ozone and secondary PM<sub>2.5</sub> impact analysis. The analysis appears to rely on NO<sub>x</sub>, SO<sub>2</sub>, and VOC emission rates that do not match the values given on TSD pages 25-26 and TSD appendix A page 3. We request that you verify the NO<sub>x</sub>, SO<sub>2</sub>, and VOC emission rates used in the analysis and update the analysis as necessary to account for emissions from the proposed source.

**IDEM Response to EPA Modeling Comment 6:**

IDEM received a comment about emission units EU-3001 and EU-3002 as being modeled at a lower emission rate than the permitted limit of 26.3 lb of SO<sub>2</sub> /hr. Each of these units were modeled at 19.05 lb of SO<sub>2</sub> /hr in the modeling for the normal operation of the facility. The value used in the modeling of 19.05 lb of SO<sub>2</sub> /hr represents approximately 72% of the permitted limit for each unit. This represents the maximum sulfur load one of the two tail gas treatment units can handle. When the Block 2000 VCC Units are operating at 100% capacity, both Sulfur Recovery Units (EU-3001 and EU-3002) will each handle approximately 50% of the incoming sulfur load when operating together. However, when either of the tail gas treatment units are not operating, the sulfur loading capacity from the VCC units is capped at 70%. Thus, modeling each unit together at 70% accounts for 140% of VCC operation under normal conditions as a conservative estimate for modeling purposes. The table below shows the operating scenarios and sulfur loading potentials at for each unit.

Scenario No.	Operating Mode	Sulfur Loading from VCC	Number of SRP's Operating	% Sulfur Loading for Operating SRP(s)
1	100% VCC Operation (Normal Operations)	100%	2	Both SRP's operating, each handling ~50% of the incoming load from VCC Unit
2	70% VCC Operation (During VCC Unit Turndown, Start-up, Shutdown)	≤ 70%	1	The operating SRP handles the incoming load from VCC Unit
3	70% VCC Operation (During VCC Unit Turndown, Start-up, Shutdown)	≤ 70%	2	The total sulfur loading is limited to ≤ 70% to both SRP's. The two SRP's could split the incoming load in a 50-50, 60-40 or 70-30 ratio, i.e., within SPR capacity & turndown limits.
4	70% VCC Operation (One SRP is not available or shutdown)	≤ 70%	1	The operating SRP handles the incoming load from VCC Unit

Annual emissions of NO<sub>x</sub>, VOC, and SO<sub>2</sub> used in the Section F secondary analysis for PM<sub>2.5</sub> and ozone were updated. Updated emissions values remain below the values for Indiana provided in U.S. EPA MERPS Guidance.

See Appendix C to the ATSD for the revised modeling analysis in its entirety.

**EPA Modeling Comment 7:**

Pages 13-14 of the air quality analysis provides IDEM's HAP modeling results. As part of our review, we note that the estimated aggregated hazardous air pollutant (HAP) in the air quality analysis report is 30 tons/yr and methanol emissions is 24 tons/yr. However, TSD appendix A page 7 states that total HAPs after issuance will be 60.30 tons/yr and methanol emissions, while still the highest HAP emitted, is 28.03 tons/yr. We request that you verify and correct the highest single HAP and total HAP emission rates cited in the analysis. We also request that you verify the emission rates used to generate the results in Table 11 to ensure the analysis considers the proposed Both SRP's HAP emission rates.

**IDEM Response to EPA Modeling Comment 7:**

IDEM has verified the input files and has determined that Methanol was modeled appropriately at 28 tpy in the final modeling files. The modeled concentrations in the Air Quality Analysis, Appendix C of this ATSD, HAPs table (Table 11) reflects the 28 tpy rate. The remainder of the difference between total tonnage modeled and the value listed in the TSD - Appendix A, page 7 is the result of fugitive leaks. IDEM modeled volume sources which represented fugitive HAP emissions to account for the fugitive leaks emissions to maintain its more conservative HAPs analysis.

See Appendix C to the ATSD for the revised modeling analysis in its entirety.

**EPA Modeling Comment 8:**

The annual NO<sub>2</sub> SIL analysis does not appear to model 2012 impacts. Instead, the 2012 annual NO<sub>2</sub> analysis uses 2013 meteorological data to drive the model. Similarly, the 2013, 2014, and 2015 annual NO<sub>2</sub> analysis uses meteorological data from the following year to drive the model. The 2016 annual NO<sub>2</sub> analysis uses 2016 meteorological data, ultimately resulting in concentrations based on 2016 met data to be repeated twice in the analysis. We request that you revise the modeled meteorological data to ensure the modeled year matches the year of the analysis. If the corrections result in a higher modeled annual NO<sub>2</sub> concentration, then we also request that you update the reported concentration provided in tables 2 and 3 of the air quality analysis.

**IDEM Response to EPA Modeling Comment 8:**

IDEM reviewed the NO<sub>2</sub> SIL analysis files and confirmed that the year 2012 does not seem to have been modeled. The file labeled "2012" uses 2013 meteorological data and 2013 uses 2014 data etc. These files were associated with the Emergency Fast Depressure Test flaring scenario which is the worst case modeling scenario. IDEM has re-run AERMOD with the meteorological files corresponding to the correct year. The revised annual NO<sub>2</sub> modeled results went from 0.68 µg/m<sup>3</sup> to 0.71 µg/m<sup>3</sup>, still well below significant impact level and preconstruction monitoring thresholds.

See Appendix C to the ATSD for the revised modeling analysis in its entirety.

**EPA Modeling Comment 9:**

The short term and annual SO<sub>2</sub> SIL analyses appear to include the emissions from EU-7001, the steam-hydrocarbon reformer furnace for hydrogen plant 1, and not EU-7002, the reformer furnace for hydrogen plant 2. It is not clear why only one reformer furnace is included in the analysis. We request that you either include both reformer furnaces in the analysis or provide justification explaining why it is appropriate to only include one reformer furnace in the analysis.

**IDEM Response to EPA Modeling Comment 9:**

The analysis does not include Hydrogen Reformer #2 because the modeling inputs represent a flaring scenario under which many of the units will not be operating or operating at a reduced rate. IDEM modeled both of the reformers when the facility is operating under normal conditions and found that the highest concentrations under normal conditions were less than the flaring scenario concentration. IDEM used the flaring scenario for the SIL and NAAQS analysis as this represented the worst case.

**EPA Modeling Comment 10:**

For the 24-hour and annual PM<sub>10</sub> and PM<sub>2.5</sub> analysis, EU6000 is modeled at 0.51 lb/hr. However, condition D.3.1(a)(3) limits EU6000 to 0.53 lb/hr. We request that you verify the modeled emission rate for this emission unit and update the analysis as necessary.

**IDEM Response to EPA Modeling Comment 10:**

IDEM has checked the PM<sub>2.5</sub> analysis, and the rate in the modeling is 0.53 lb/hr. The SIL and NAAQS values reported in the Air Quality Analysis reflect this rate. For PM<sub>10</sub>, the rate in the

modeling is 0.51 lb/hr. IDEM has updated its modeling for EU6000 to 0.53 lb/hr and found no change in the maximum impact value.

See Appendix C to the ATSD for the revised modeling analysis in its entirety.